



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/543,089

06/09/2006

Kazunori Takada

052074

5615

38834

7590

03/23/2009

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

1250 CONNECTICUT AVENUE, NW

SUITE 700

WASHINGTON, DC 20036

EXAMINER

RUMP, RICHARD M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

03/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/543,089

Applicant(s)

TAKADA ET AL.

Examiner

Richard M. Rump

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
- Paper No(s)/Mail Date 7/22/2005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Status of Application

Claims 1-5 are pending and presented for examination.

Priority

Acknowledgement is made of applicant's request for foreign priority under 35 U.S.C. §119(a)-(d). Certified copies of the priority documents have been **received**. Since intervening references have been used, Applicant is **required** to perfect their claim to foreign priority by submitting a certified translation of their priority document to obviate said intervening reference(s).

Drawings

The drawings are objected to because figure 3 discloses the x-axis as a function of temperature in / °C, it can be construed from the instant application that the x-axis should be / K. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 22 July 2005 is acknowledged and the references listed thereon have been considered by the examiner on the attached copy of the PTO-1449 form. However, it is to be noted that the Braconnier and Fouassier references were only considered on their abstracts as their bodies was not in English.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-5 are rejected under 35 U.S.C. 102(a) as being anticipated by Takada *et al.*, "Structural difference between a superconducting sodium cobalt oxide and its related phase".

Regarding claims 1-4, Takada discloses a hydrated sodium-cobalt oxide with a c-axis spacing of 9.8 Å, edge-sharing CoO_6 octahedra and a composition of $\text{Na}_{0.35}\text{CoO}_2 \cdot 1.5\text{H}_2\text{O}$ (Abstract & Introduction). Superconductivity is disclosed as occurring at 5 K (Results and Discussion)

Regarding claim 5, furthermore in the introduction it is disclosed that intercalating (via insertion of bilayers of hydration) is used (See text surrounding reference marker [14] in the paper).

Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Loo *et al.*, "Chemical instability of the cobalt oxyhydrate superconductor under ambient conditions".

Regarding claims 1-4, Loo discloses hydrated sodium-cobalt oxide with c-axis spacing between 6.4 and 9.9 Å of the formula $\text{Na}_{0.3}\text{CoO}_2 \cdot 1.4\text{H}_2\text{O}$ (abstract) with a temperature of superconductivity near 4K (Introduction).

Claims 1, 3-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Jin *et al.*, "Observation of Bulk Superconductivity in $\text{Na}_x\text{CoO}_2 \cdot y\text{H}_2\text{O}$ and $\text{Na}_x\text{CoO}_2 \cdot y\text{D}_2\text{O}$ Powder and Single Crystals".

Regarding claim 1, the hydrated sodium-cobalt oxide solution is made up of layers of CoO_2 with edge sharing (inherently octahedral sharing given the hexagonal

crystal structure) with c-axis spacing with a composition of $\text{Na}_{0.3}\text{CoO}_2 \cdot 1.3\text{H}_2\text{O}$ (Introduction). Superconductivity is exhibited at 4.5K (First paragraph of page 3).

Conclusion

Claims 1-5 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard M. Rump whose telephone number is (571)270-5848. The examiner can normally be reached on Monday through Friday 7:00 AM-4:30 PM (-5 GMT).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571)272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/543,089
Art Unit: 1793

Page 6

/R. M. R./
Examiner, Art Unit 1793

/Stuart Hendrickson/
Primary Examiner, Art Unit 1793